

1.

Sub  
A17  
In combination,

a yoke provided with an annular bore and first and second spaced chambers each of which open into said bore,

an annular gear rotatably disposed in said bore and being provided along its outer periphery with a plurality of teeth, each tooth being rounded at its outer extremity and each gap between adjacent teeth being rounded in such manner that the outwardly presented angle of each gap is greater than the inwardly presented angle of each tooth,

a first pawl pivotally disposed in said first chamber and including a first pawl tooth sized for snug fitting disposition in any of the gaps on the gear, said first pawl also including a second pawl tooth which is sized and shaped for cooperating with an adjacent gear tooth to urge the first pawl tooth snugly into a gap on the gear as the first pawl is pivoted toward the gear,

a second pawl pivotally disposed in said second chamber and including a third pawl tooth sized for snug fitting disposition in any of the gaps on the gear, said second pawl also including a fourth pawl tooth which is sized and shaped for cooperating with an adjacent gear tooth to urge the third pawl snugly into a gap on the gear as the second pawl is pivoted toward the gear,

first biasing means in the first chamber for urging the first pawl towards the gear,  
and

second biasing means in the second chamber for urging the second pawl towards

the gear,

and control means for selectively allowing only one of the two pawls to engage the gear as the yoke is moved with respect to the gear

2.

The combination of claim 1 in which the first chamber is provided with a first concave arcuate wall, the second chamber is provided with a second concave arcuate wall, the first pawl is provided with a first convex arcuate wall, the second pawl is provided with a second convex arcuate wall, the concave arcuate walls have substantially the same radius as the convex arcuate walls, the first pawl is sized and located such that when the first tooth is seated in a gap between adjacent gear teeth the first concave wall and the first convex wall will be in direct contact with each other, and the second pawl is sized and located such that when the third tooth is seated in a gap between adjacent gear teeth the second concave wall and the second convex wall will be in direct contact with each other, whereby the driving force applied to the yoke will be fully transferred to the gear.

3.

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A2 > The combination of claim 1 in which the second pawl tooth is sized shorter and narrower than the first pawl tooth, and the fourth pawl tooth is sized shorter and narrower than the third pawl tooth.

4.

In a power tool comprising a movable yoke and a gear to be driven by movement of said yoke, the improvement of a pawl pivotally disposed in a chamber within the yoke, means for selectively engaging the pawl with the gear as the yoke is moved in one direction, and backloading means for transferring substantially all of the moving power applied to the yoke to the gear as the yoke is moved in said direction.

5.

The device of claim 4 in which the backloading means includes a first annular wall within the chamber, a second annular wall on the yoke, said first annular wall being slightly larger diametrically than said second annular wall, said pawl being disposed within said chamber in such manner that when the yoke is driven in the preselected direction, the first and second annular walls are in abutment with each other whereby to transfer substantially all of the moving power applied to the yoke to the pawl.

6.

The device of claim 4 in which the gear has a plurality of spaced teeth about its periphery, the backloading means includes a first annular wall within the chamber, a second annular wall on the yoke, said first annular wall being slightly larger diametrically than said second annular wall, said pawl being disposed within said chamber in such manner that when the yoke is driven in the preselected direction, the first and second annular walls are in firm contact with each other whereby to transfer substantially all of the moving power from the yoke to the pawl, and the pawl includes a plurality of teeth, at least one of which is in snug fitting disposition between adjacent gear teeth.

7.

The device of claim 4 in which the gear has a plurality of spaced teeth about its periphery, the backloading means includes a first annular wall within the chamber, a second annular wall on the yoke, said first annular wall being slightly larger diametrically than said second annular wall, said pawl being disposed within said chamber in such manner that when the yoke is moved in the preselected direction, the first and second annular walls are in contact with each other whereby to transfer substantially all of the moving power from the yoke to the pawl, and the pawl includes an elongated element provided at its outer end with a plurality of teeth, at least one of which is in snug fitting disposition between adjacent gear teeth.

8.

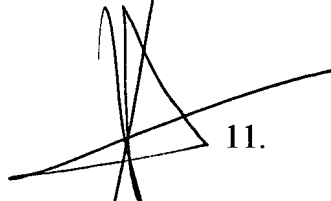
The device of claim 4 in which the gear has a plurality of spaced teeth about its periphery, the backloading means includes a first annular wall within the chamber, a second annular wall on the yoke, said first annular wall being slightly larger diametrically than said second annular wall, said pawl being disposed within said chamber in such manner that when the yoke is moved in the preselected direction, the first and second annular walls are in contact with each other in such manner as to transfer substantially all of the moving power applied to the yoke to the pawl, and the pawl includes an elongated element provided at its outer end with a plurality of teeth, at least one of which is in snug fitting disposition with the gear between adjacent gear teeth, the elongated element of said pawl being in substantial alignment with the chamber and gear teeth.

9.

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A37 In a power tool, the combination of a yoke and pawl, said yoke comprising a reciprocally driven member provided with an enlarged bore and a chamber, said chamber being substantially cylindrical in shape and including an axially extending opening leading to a larger chamber, said pawl including an elongated element which is cylindrical over most of its periphery and sized for snug but pivotal disposition in the smaller chamber of the yoke, said pawl also including an outwardly projecting element which extends through the larger chamber into the bore.

10.

The combination of claim 9 in which the smaller and larger chambers of the yoke are provided with a common floor, one end of the pawl is also flat, and the cylindrical wall of the smaller chamber of the yoke is sized for retaining the pawl in the smaller chamber during pivotal movement of the pawl within the chambers when the flat end of the pawl is on the floor of the chambers.



11.

The combination of claim 9 in which the smaller and larger chambers of the yoke are provided with a common floor, one end of the pawl is also flat, the cylindrical wall of the smaller chamber of the yoke is sized for retaining the pawl in the smaller chamber during pivotal movement when the flat end of the pawl is on the flat floor of the chambers, and the outwardly projecting element is provided with a plurality of teeth which are moved into and out of the bore as the pawl is pivoted.

12.

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A4* The combination of claim 9 in which the smaller and larger chambers of the yoke are provided with a common flat floor, one end of the pawl is also flat, the cylindrical wall of the smaller chamber of the yoke is sized for retaining the pawl in the smaller chamber during pivotal movement when the flat end of the pawl is on the flat floor of the chambers, and the outwardly projecting element is provided with a plurality of different sized teeth which are moved into and out of the bore as the pawl is pivoted.

13.

In a power tool, the combination of a yoke and a pair of pawls, said yoke comprising a reciprocally driven member provided with an enlarged bore and a pair of spaced complementary chambers, each of said chambers being substantially cylindrical in shape and including an axially extending opening leading to a larger chamber, each of said pawls including an elongated element which is cylindrical over most of its periphery and sized for snug but movable disposition in one of the smaller chambers of the yoke, each pawl also including an outwardly projecting element which extends from its respective smaller chamber to the bore through the larger chamber.

14.

The combination of claim 13 in which the smaller and larger chambers of the yoke are provided with a common flat floor, one end of each pawl is also flat, and the cylindrical wall of each smaller chamber of the yoke is sized for retaining one of the pawls in its respective smaller chamber during pivotal movement of said pawl when the flat end of the pawl is on the flat floor.

15.

The combination of claim 13 in which the smaller and larger chambers of the yoke are provided with a common floor, one end of each pawl is also flat, the cylindrical wall of each smaller chamber of the yoke is sized for retaining one of the pawls in its respective smaller chamber during pivotal movement of said pawl when the flat end of the pawl is on the flat floor of the chambers, and the outwardly projecting element of each pawl is provided with a plurality of teeth which are moved into and out of the bore as that pawl is pivoted.

16.

The combination of claim 13 in which the smaller and larger chambers of the yoke are provided with a common floor, one end of each pawl is also flat, the cylindrical wall of each smaller chamber of the yoke is sized for retaining one of the pawls in its respective smaller chamber during pivotal movement of said pawl when the flat end of the pawl is on the flat floor of the chambers, and the outwardly projecting element of each pawl is provided with a plurality of different sized teeth which are moved into and out of the bore as that pawl is pivoted.

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